

REMARKS**I. General**

Claims 1-45 are pending in the present application. Claims 3 and 36 have been amended. Claims 1-45 will remain pending after entry of this Amendment.

Claims 1, 2, 4, 5, 10-23, and 33-39 stand rejected under 35 U.S.C. § 103(a). Claim 3 is rejected under 35 U.S.C. § 112, second paragraph. Claim 36 stands objected to because of an informality. Claims 6-9, 24-32, and 40-43 stand objected to as depending from a rejected claim, but would be allowable if rewritten in independent form. Claims 44 and 45 are allowed. Applicant respectfully traverses the rejections and objections of record.

II. The Claim Objections

Claim 36 stands objected to because of an informality. Applicant has amended Claim 36 to remove the extraneous phrase appearing after the period.

III. The 35 U.S.C. § 112 Rejections

Claim 3 stands rejected under 35 U.S.C. § 112, as being incomplete for omitting essential elements. Applicant has amended claim 3 to recited that each array response vector represents the path from a particular subscriber unit to the communication link. Applicant believes that the amendment to claim 3 addresses the rejection set forth by the Examiner, and asks that the Examiner's rejection of claim 3 be withdrawn. Applicant has amended claim 3 only in response to the § 112 rejection and not in response to a rejection based on the prior art. No new matter has been added with the amendment of claim 3 as the added language is found on page 12 at line 24.

IV. The 35 U.S.C. § 103 Rejections

Claims 1, 2, 4, 5, 10-23, and 33-39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Number 6,597,678 to Kuwahara et al. (hereinafter Kuwahara) in view of U.S. Patent Number 5,924,020 to Forssen et al. (hereinafter Forssen). To establish a *prima facie* case of obviousness, three basic criteria must be met, see M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in

the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Without conceding the second criteria, Applicant respectfully asserts that the reference lacks proper motivation to combine in addition to lacking all the claim limitations.

A. The Independent Claims

Independent claim 1 recites “a speed estimator providing speed information with respect to a subscriber unit”. In addressing this limitation in the claim, the Examiner cites only Kuwahara, and states that while Kuwahara is silent regarding the estimating of the speed of the subscriber unit, Kuwahara is tracking both the desired subscriber unit and seeking to provide nulls in the direction of interferers. Further, the Examiner states that Kuwahara notes that the directions of signals from the desired unit is noted and obviously for the return or downlink signal to be optimum for the moving desired unit, Kuwahara would have to utilize some aspect or component of the direction information from the uplink signal to represent speed.

Clearly, the Examiner is using the Applicant’s invention to impose a feature on Kuwahara that is neither disclosed, nor suggested by Kuwahara. The Examiner is impermissibly relying upon hindsight to read detail into the disclosure of Fukuda from information gleaned from Applicant’s disclosure, see M.P.E.P. § 2145(X)(A). Alternatively, the Examiner has either relied on his own personal knowledge, or taken Official Notice, with respect to this matter. Under Rule 37 C.F.R. §1.104(d)(2), the Examiner is hereby requested to provide and make of record an affidavit setting forth his data as specifically as possible for the assertion. Alternatively, under M.P.E.P. §2144.03, the Examiner is hereby requested to cite a reference in support of the assertion. Otherwise the rejection of Claim 1 should be withdrawn.

Further, the Examiner’s reasoning with respect to the disclosure of Kuwahara is in error. The Examiner is opining that because the mobile unit moves, the beam of Kuwahara must move, and therefore Kuwahara must suggest a speed component in the control of Kuwahara. As the mobile stations of Kuwahara are, in fact, mobile, Kuwahara must be able

to detect the change in position of a mobile unit and adjust the beam accordingly. However, detecting the change in position of a mobile station is not the same as providing speed information, as claimed by the present invention. Kuwahara merely uses averages of the array response vectors to track the position of the mobile unit to prevent fading that occurs as the mobile unit moves with respect to the downlink beam. Column 7, lines 10-16. As the Examiner explicitly notes, Kuwahara does not disclose the use of speed information with respect to a mobile, or subscriber unit, and the Examiner's leap of logic from the tracking of position being the same as providing speed information is clearly in error and not supported by the disclosure of either Kuwahara or Forssen.

Claim 1 additionally requires using the speed information to select a beam configuration from a plurality of beam configurations. The Examiner cites Forssen as disclosing an antenna assembly that selects and forms a beam configuration. Applicant respectfully disagrees with the Examiner's characterization of Forssen. Forssen discloses the use of an elongated lobe beam pattern, column 3, line 39-43, Figure 3, instead of the less directional beam pattern shown in Figure 2. Forssen never mentions selecting a beam pattern from a plurality of beam patterns as claimed in claim 1. While two different beam patterns are shown in Figure 2 and Figure 3, Forssen never discloses selecting between the patterns, much less any criteria to be used to perform the selection.

As the applied art does not teach or suggest a speed estimator providing speed information to select a beam configuration, and the rejection of record does not provide how this art might be modified to meet such a limitation, the 35 U.S.C. § 103 rejection of record with respect to claim 1 is improper.

Claim 15 requires speed estimation circuitry providing speed information with respect to a subscriber unit. The Examiner again surmises that, though it is not even suggested, much less disclosed by Kuwahara, Kuwahara must use a representation of speed since the mobile units move. As stated, detecting a change in position, which is suggested by Kuwahara, column 7, lines 10-16, is not the same as providing speed information, as set forth in claim 15, thus Kuwahara does not disclose speed estimation circuitry.

Claim 15 additionally requires beam analyzer circuitry providing beam merit information with respect to said subscriber unit for a plurality of beam configurations, and beam mapping circuitry providing selection of an optimum beam. The Examiner states that Forssen meets these limitations. Applicant respectfully disagrees. The Examiner cites elements 92 and 94 of Figure 7, which are the direction of arrival determiner and the beam configuration determiner, respectively. The direction of arrival determiner 92 is “operable to determine the direction from which the uplink signal received at antenna elements 58 is transmitted.” Column 8, lines 48-50. While the beam configuration determiner 94 determines “the direction in which the elongated lobe is to extend”. Column 8 line 66 to column 9, line 1. It is clear that the mechanism of Forssen cited by the Examiner is only to determine the direction of the signal and point the elongated lobe of Forssen in the proper direction. As previously stated, Forssen only discloses one beam configuration, an elongated lobe, and not an optimum beam based on beam merit information and speed information as recited in Claim 15.

As the applied art does not teach or suggest speed estimation circuitry providing speed information, nor beam mapping circuitry providing selection of an optimum beam using beam merit information and speed information, and the rejection of record does not provide how this art might be modified to meet such a limitation, the 35 U.S.C. § 103 rejection of record with respect to claim 15 is improper.

Claim 33 requires estimating subscriber unit speed. As before, the Examiner states that Kuwahara suggests the use of speed, since Kuwahara must detect the change in position of the mobile units. As set forth in the arguments above, Kuwahara does not disclose or suggest estimating subscriber unit speed as required by claim 33.

Claim 33 also requires analyzing a plurality of beam configurations to provide beam merit information and mapping the beam merit information to a selected optimum beam configuration as a function of the speed information. As set forth above with respect to claims 1 and 15, Forssen only discloses a single beam configuration, namely an elongated lobe. Column 8, line 65 through column 9, line 1. Forssen does not disclose analyzing a plurality of beam configurations, nor mapping beam merit information to a selected a beam configuration as required by claim 33.

As the applied art does not teach or suggest estimating subscriber unit speed, nor analyzing a plurality of beam configurations, and mapping beam merit information to a selected optimum beam, and the rejection of record does not provide how this art might be modified to meet such a limitation, the 35 U.S.C. § 103 rejection of record with respect to claims 33 is improper.

In addition to the lack of all claim limitations, there is no motivation in Kuwahara or Forssen to combine the elongated lobe beam pattern described in Forssen with the adaptive array antenna of Kuwahara. The Examiner has stated that Kuwahara and Forssen are combinable because they share a common endeavor, namely a base station having smart antenna technology, and that it would have been obvious to modify Kuwahara to make appropriate antenna beam selection as done by Forssen. Applicant respectfully asserts that the statements of the Examiner are merely conclusory statements of the results of the combination put forward by the Examiner. The statements do not offer any motivation or reasons that the elongated lobe beam of Forssen would have been of any benefit to the adaptive array antenna of Kuwahara. Further, Kuwahara already includes a downlink mechanism having a pattern with a null in the direction of interfering mobile stations. Column 3, lines 8-13. There is no suggestion that a different downlink mechanism with a different antenna pattern would be beneficial, and the Examiner has provided no reasoning, other than conclusory statements, that would show any benefit from using the elongated lobe beam pattern in Forssen with the adaptive array antenna of Kuwahara.

B. The Dependent Claims

Claims 2, 4, 5, and 10-14, depending from independent claim 1, claims 16-23, depending from claim 15, and claims 34-39 depending from claim 33 are asserted to be patentable at least for the reasons set forth above with respect to claims 1, 15 and 33, respectively. Although standing rejected under 35 U.S.C. § 103, using combination of Kuwahara and Forssen, Applicant has shown that Kuwahara does not disclose a speed estimator, and that Forssen does not select a beam configuration from a plurality of beam configurations, and the 35 U.S.C. § 103 rejection of record does not cure these deficiencies. More specifically, claim 2 requires a signal integrator, claim 16 requires signal integration circuitry, and claim 34 requires integrating said signal. The elements 106 and 108 of Figure 4

cited by the Examiner do not mention any form of integration. Moreover, claims 4-5, 17-18, and 35-36 recite integrating a pilot signal or a coded signal, respectively. As Kuwahara does not disclose integrating signals, the integration of the pilot or coded signal of claims 4-5, 17-18, and 35-36, respectfully, is not disclosed. As to claim 14, Kuwahara does not disclose selecting a beam configuration for a reverse link. Accordingly, claims 2, 4, 5, 10-14, 16-23, and 34-39 are asserted to be patentable over the rejections of record.

Further, the Examiner states with respect to claims 10-12, 19-23, and 37-39 that it is well known that a speed estimator determines speed as a function of Rayleigh fading estimations and that it would have been obvious for Kuwahara to utilize such estimations. Kuwahara, as set forth above, does not disclose using speed information to modify or select the antenna configuration. It is respectfully submitted that the Examiner is again impermissibly relying upon hindsight to read detail into the disclosure of Kuwahara from information gleaned from Applicant's disclosure, see M.P.E.P. § 2145(X)(A). Alternatively, the Examiner has either relied on his own personal knowledge, or taken Official Notice, with respect to this matter. Under Rule 37 C.F.R. §1.104(d)(2), the Examiner is hereby requested to provide and make of record an affidavit setting forth his data as specifically as possible for the assertion. Alternatively, under M.P.E.P. §2144.03, the Examiner is hereby requested to cite a reference in support of the assertion. Otherwise the rejections of claims 10-12, 16-23, and 34-39 should be withdrawn.

Additionally, claims 10-12, 19-23, and 37-39 do not recite the limitation that the fading estimate is a Rayleigh fading estimate. Applicant respectfully asserts that the Examiner is imposing a limitation on the claims that do not exist in the language of the claims themselves.

As the applied art does not teach or suggest the limitations set forth with respect to the dependent claims recited above, and the rejection of record does not provide how this art might be modified to meet such a limitation, the 35 U.S.C. § 103 rejection of record with respect to claims 2, 4, 5, 10-14, 16-23, and 34-39 is improper.

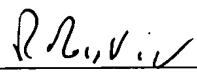
V. Summary

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 06-2380, under Order No. 65948/P067US/10315933 from which the undersigned is authorized to draw.

Dated: November 24, 2004

Respectfully submitted,

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